

collecting the plurality of zero valent metal particles at a bottom end of the vertical RES reactor,

wherein the plurality of zero valent metal particles include hollow sphere particles having a diameter ranging from about 10 nm to about 10,000 nm and pores in the order of about 1% to about 80% of the size of the hollow sphere particles. 5

9. The method of claim 8, wherein the heated inert atmosphere in the RES reactor has a temperature ranging from about 1000° C. to about 1500° C. 10

10. The method of claim 8, wherein the aerosol stream has a flow rate ranging from about 100 cc/min to about 1500 cc/min through the heated inert atmosphere.

11. The method of claim 8, wherein the aerosol stream flowing through the heated inert atmosphere for a residence time of less than 100 seconds. 15

12. The method of claim 8, wherein the plurality of zero valent metal particles are formed of at least one metal selected from the group consisting of Ni, Sb, Co, In, Fe, and Ga.

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